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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/618,536	07/18/2000	Gregory S. Bayley	TRW(AP)4566	8672

7590

04/26/2002

Tarolli Sundheim Covell Tummino & Szabo LLP
1111 Leader Bldg 526 Superior Avenue
Cleveland, OH 44114-1400

EXAMINER

ILAN, RUTH

ART UNIT

PAPER NUMBER

3616

DATE MAILED: 04/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/618,536

Applicant(s)

BAYLEY ET AL

Examiner

Ruth Ilan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 29 October 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 3616.

Election/Restrictions

2. Applicant's election without traverse of the species of Figure 4 in Paper No. 4 is acknowledged. Please note that upon further consideration, this election requirement is hereby withdrawn, because the Examiner believes she was mistaken in indicating that the two species were patentably distinct. The Examiner regrets any inconvenience that the initial requirement may have caused the Applicant.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Additionally, claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Based on the specification, it appears that the invention is directed to a design of an side air bag that includes coupling two parameters, the thickness of the air bag and the internal pressure of the air bag so that the air bag will adequately perform, that is so that the air bag will, at a given thickness/inflation pressure combination adequate protect an occupant from hitting the vehicle side structure through the air bag. The following are unknown regarding the design process, and as such lead to the Examiner's contention that the specification is not enabling. On page 12, the specification indicates that the volume of the inflatable curtain was maintained between 20-45 liters, and the curtain was modified to have various desired thicknesses. Is this by changing the geometry of the gas bag, or the elasticity of the material of construction? How was the inflatable curtain modified for the desired thickness? What computer generated model was used? What assumptions were used? What statistical analysis was used to generate the two curves? What error and r-squared is used for these curves? What is meant by the inflation pressure, is it at a specific time, and/or temperature? What temperature is assumed? The process is not in stasis, so at what point in time is the pressure considered?

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1, the Examiner assumes that the scope of the intended invention is that for a given air bag thickness, the air bag should

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be designed so that upon inflation it will have a specific predetermined pressure.

However, the scope of the claim is unclear because a system like an air bag is not at equilibrium, and there is insufficient disclosure to understand what is intended by "predetermined pressure." At what time after inflation is initiated should the pressure be considered? Additionally, as written, it appears that the claim is directed to a functional relationship between pressure and thickness, which for a given air bag can be construed to be a restatement of a form or variation of the Ideal Gas Law, which is non-statutory subject matter. However, based on the disclosure, it appears that the last four lines of the claim that is "said predetermined pressure being determined as a function of said predetermined thickness..." is really directed to a method of designing an air bag of a given thickness, and as such the claim is in a sense a hybrid claim directed to a method of designing an air bag, and not the apparatus itself. Regarding claims 2 and 8, it is not clear if the pressure P is absolute or gauge. Regarding claims 4, 6, 10, and 12, it is not clear if there is meant to be one-to-one correspondence between the pressures in the range and the thickness in the range of the claims (3,5,9, and 11) from which these claims depend.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

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by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. Under 1 interpretation of claim 1, as best understood, claims 1, 14-18, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Cherry (US 6,022,044.) As seen in Figure 1, which is essentially identical to Figure 1 of the instant application, the air bag of Cherry is an inflatable vehicle occupant protection device that meets the structural limitations as recited in these claims. Additionally, as broadly claimed, the pressure in the air bag will be a function of the volume, which is a function of the thickness.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Under a different interpretation of claim 1, Claims 1-6, 8-12, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherry (US 6,022,044) in view of Tanase (US 6,260,878 B1), Ellerbok (US 5,662,354) HÅland et al. (US

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5,788,270) and Timothy et al. (US 5,775,726.) Cherry is discussed above, and teaches all the structural limitations of the claimed invention, but does not specifically disclose the particular functional relationship between the parameters of pressure and thickness used as design criteria for the airbag. Tanase, Ellerbok and HÅland et al. all teach that it is known to inflate air bags with pressures in the claimed ranges (All teach 10-40 Kpa) . Regarding claim 8, the pressure and thickness provided as typical by HÅland et al. (3 bar at 30-40 mm) is reasonably within the set of data used to generate the curve provided in the instant application. Timothy teaches that the thickness that is acceptable for an air bag used as protection in a rollover is 2-4 inches (50-200mm) which is within the claimed range. In general, the prior art teaches the range of pressures and thickness for an air bag. Regarding the derivation of a specific relationship between pressure and thickness, the Examiner takes Official Notice that the design of an air bag based on a model that uses the momentum of an occupant's head and the relative ability of an air bag to absorb energy and the level of penetration toward a window is based on first principals and would be well within the level of ordinary skill in the art, especially to the extent disclosed by the Applicant. Additionally, Ellerbok (see Abstract) teaches that it known to decrease air bag penetration by the occupant by increasing the hardness. It would be obvious to one having ordinary skill in the art at the time of the invention that the harder the air bag (higher pressure) is, the thinner it can be, based on common sense, and Ellerbok. Regarding the specific claimed empirically derived equations for pressure as a function of thickness it would have been obvious to one having ordinary skill in the art at the time of the invention to model the pressure as

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a function of thickness based on these equations, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980.)

11. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cherry (US 6,022,044) in view of Tanase (US 6,260,878 B1), Ellerbok (US 5,662,354) HÅland et al. (US 5,788,270) and Timothy et al. (US 5,775,726.) as applied to claims 2 and 8 above, and further in view of Olsson et al. (US 5,094,475.) Cherry etc., are discussed above, and teach all elements of the claimed invention, including an air bag that appears identical in volume to the disclosed invention. Cherry is however, silent regarding the volume of the air bag. Olsson et al. (col. 3, line 2) teaches that it is known in the art to provide a volume of gas including a volume in the claimed range (25 liters) as appropriate coverage for a side impact air bag. It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the air bag of Cherry with an inflation volume of 25 liters, as taught by Olsson et al. in order to provide a big enough air bag to cover a window.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okumura et al., Tanase et al. ('836 B1), Bark et al., Valkenburg, Amin et al., and Hill et al. teach side air bags of interest.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth Ilan whose telephone number is 703-306-5956.

The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on 703-308-2089. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RI
April 19, 2002

Ruth Ilan
4/19/02

Paul N. Dickson
PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600